THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Apparatus for processing fluid comprising:

a body defining a fluid flow passage having a fluid inlet and a fluid outlet, the body comprising a first electrode arrangement and a second electrode arrangement displaceable with respect to the first electrode arrangement, the first and second electrode arrangements adapted for connection to a supply of electric current such that fluid within the body forms part of an electrolytic cell providing for a flow of ions between the first and second electrode arrangements;

biasing means operatively associated with the second electrode arrangement and adapted to displace the second electrode arrangement against a flow of fluid within the body in order to displace the second electrode arrangement into closer proximity with the first electrode arrangement as the fluid flow rate increases, thereby increasing the flow of ions, and to displace the second electrode arrangement away from the first electrode arrangement as the fluid flow rate decreases, thereby decreasing the flow of ions.

2. Apparatus as claimed in claim 1, wherein the first electrode arrangement comprises an electrode fixed relative to the body and the second electrode arrangement comprises two opposed electrodes, mounted within a moveable support, allowing for positioning of the fixed electrode therebetween.

3. Apparatus as claimed in claim 1 or 2 wherein, the biasing means comprises a spring connected to the body means.

4. Apparatus as claimed in claim 1, 2 or 3, wherein the ions are metal ions having anti-microbial and plating out properties such that the metal ions plate to fluid contact surfaces of the body and fluid carrier means located beyond the body to form a biostatic film on the fluid contact surfaces.

5. Apparatus as claimed in claim 2, 3 or 4, wherein the moveable support comprises a piston and at least one of the electrode arrangements comprises silver for producing a flow of silver ions between the electrodes.

6. Apparatus as claimed in any one of claims 1 to 5 further comprising an electric circuit for supplying electric current to the electrolytic cell.

7. Apparatus as claimed in claim 6 further comprising:

fluid flow measurement means for determining whether there is actual fluid flow between the inlet and the outlet of the body, and wherein;

the electric circuit for supplying electric current to the electrolytic cell comprises circuit control means for reducing the electric current supplied to the first and second electrode arrangements if there is no actual fluid flow determined by the fluid flow measurement means.

8. Apparatus as claimed in claim 7, wherein the fluid flow measurement means comprises a flow switch having a magnet and a reed switch.

9. Apparatus as claimed in claim 6, wherein the electric circuit comprises circuitry for activating a standby mode comprising:

an operational amplifier circuit in a current return path of the electric circuit adapted to detect a no fluid flow current threshold level selected to be nominally greater than a galvanic current drawn by the electrolytic cell when there is no fluid flow in the body, the operational amplifier circuit further adapted to output a signal indicating a no fluid flow condition upon detecting the no fluid flow current threshold level;

a micro-controller adapted to receive output signals of the operational amplifier and, upon receiving an output signal indicating the no fluid flow condition, increment a timer within the micro-controller for a predetermined continuous period of time at the end of which, if the no fluid flow condition remains, the micro-controller is further adapted to activate the standby mode by activating a circuit shunt means within the electric circuit to reduce the electric current supplied to the first and second electrode arrangements.

10. Apparatus as claimed in claim 9, wherein the electric circuit further comprises circuitry for activating an operating mode comprising:

the operational amplifier circuit adapted to detect a fluid flow current threshold level selected to be nominally greater than the no fluid flow current

threshold level, the operational amplifier circuit further adapted to output a signal indicating a fluid flow condition upon detecting the fluid flow current threshold level;

sampling means for periodically sampling the output of the operational amplifier circuit at the micro-controller during the standby mode;

circuit means for increasing an electric current supply to the first and second electrode arrangements in response to the micro-controller receiving a sampled output signal from the operational amplifier circuit indicating the fluid flow condition.

11. A method of processing a fluid comprising the steps of:

providing a body defining a fluid flow passage having a fluid inlet and a fluid outlet, the body comprising a first electrode arrangement and a second electrode arrangement displaceable with respect to the first electrode arrangement, the first and second electrode arrangements adapted for connection to a supply of electric current such that fluid within the body forms part of an electrolytic cell providing for a flow of ions between the first and second electrode arrangements;

providing an electric current supply from an electric circuit to the first and second electrode arrangements;

passing the fluid through the body such that the displacement of the second electrode arrangement is biased against the flow of fluid within the body in order to displace the second electrode arrangement into closer proximity with the first electrode arrangement as the fluid flow rate increases, thereby increasing the flow of ions, and to displace the second electrode arrangement away from the first electrode arrangement as the fluid flow rate decreases, thereby decreasing the flow of ions.

12. A method as claimed in claim 11, further comprising the steps of:

determining whether there is actual fluid flow between the inlet and the outlet of the body, and;

reducing the electric current supplied to the first and second electrode arrangements if there is no actual fluid flow determined in the actual fluid flow determining step.

13. A method as claimed in claim 12, wherein the actual fluid flow determining step comprises the use of a flow switch and wherein the flow switch comprises a magnet and a reed switch.

14. A method as claimed in claim 11, further comprising activating a standby mode comprising the steps of:

determining a no fluid flow condition by adapting an operational amplifier circuit in a current return path of the electric circuit to detect a no fluid flow current threshold level selected to be nominally greater than a galvanic current drawn by the electrolytic cell when there is no fluid flow in the body;

providing an output signal of the operational amplifier circuit to a micro-controller;

upon receiving an output signal of the operational amplifier circuit indicating the no fluid flow condition, incrementing a timer within the micro-controller for a predetermined continuous period of time at the end of which, if the no fluid flow condition remains, the micro-controller activates the standby mode by activating a circuit shunt means within the electric circuit to reduce the electric current supplied to the first and second electrode arrangements.

15. A method as claimed in claim 14, further comprising activating an operating mode comprising the steps of:

determining a fluid flow condition by adapting the operational amplifier circuit to detect a fluid flow current threshold level selected to be nominally greater than the no fluid flow current threshold;

periodically sampling the output of the operational amplifier circuit at the micro-controller during the standby mode;

upon receiving an output signal of the operational amplifier circuit indicating the fluid flow condition, the micro-controller deactivates the circuit shunt

means to resume the electric current supplied to the first and second electrode arrangements.

16. A method as claimed in any one of claims 11 to 15, wherein the ions are metal ions having anti-microbial and plating out properties such that the metal ions plate to fluid contact surfaces of the body and fluid carrier means located beyond the body to form a biostatic film on the fluid contact surfaces.

17. A method as claimed in any one of claims 11 to 16, wherein at least one of the first and second electrode arrangements comprises silver for producing a flow of silver ions between the first and second electrode arrangements.

18. A method of determining fluid flow comprising the steps of:

providing a body defining a fluid flow passage having a fluid inlet and a fluid outlet, the body comprising a first electrode arrangement and a second electrode arrangement displaceable with respect to the first electrode arrangement, the first and second electrode arrangements adapted for connection to a supply of electric current such that fluid within the body forms part of an electrolytic cell providing for a flow of ions between the first and second electrode arrangements;

providing an electric current supply from an electric circuit to the first and second electrode arrangements;

passing the fluid through the body such that the displacement of the second electrode arrangement is biased against a flow of fluid within the body in order to displace the second electrode arrangement into closer proximity with the first electrode arrangement as the fluid flow rate increases, thereby increasing the flow of ions, and to displace the second electrode arrangement away from the first electrode arrangement as the fluid flow rate decreases, thereby decreasing the flow of ions;

determining the fluid flow rate by measuring either one or both of:

an ion current density between the first and second electrode arrangements, and;

a relative displacement of the first and second electrode arrangement.

19. A method as claimed in claim 18, wherein:

the step of providing an electric current supply comprises supplying an electric current regulated by a micro-controller within the electric circuit, and:

the step of measuring an ion current density comprises detecting a current sense signal, corresponding to the ion current density, in a current return path of the electric circuit.

20. A method as claimed in claim 19, further comprising the step of activating a standby mode comprising the steps of:

determining a no fluid flow condition by adapting an operational amplifier circuit in the current return path of the electric circuit to detect a no fluid flow current threshold level selected to be nominally greater than the galvanic current drawn by the electrolytic cell when there is no fluid flow in the body;

providing an output signal of the operational amplifier circuit to the micro-controller;

upon receiving an output signal of the operational amplifier circuit indicating the no fluid flow condition, incrementing a timer within the micro-controller for a predetermined continuous period of time at the end of which, if the no fluid flow condition remains, the micro-controller activates the standby mode by activating circuit shunt means to reduce the electric current supplied to the first and second electrode arrangements.

21. A method as claimed in claim 20, further comprising the step of activating an operating mode comprising the steps of:

determining a fluid flow condition by adapting the operational amplifier circuit to detect a fluid flow current threshold level selected to be nominally greater than the no fluid flow current threshold;

periodically sampling the output of the operational amplifier circuit at the micro-controller during the standby mode;

upon receiving an output signal of the operational amplifier circuit indicating the fluid flow condition, the micro-controller deactivates the circuit shunt means to resume the electric current supplied to the first and second electrode arrangements.

22. A method as claimed in any one of claims 11 to 17 or, 18 to 21 further comprising the step of:

providing a display to indicate the activation of the standby mode and/or the activation of the operating mode.

23. Biasing means adapted for controlled operation by the passage of fluid in a fluid passage, the biasing means being operative to displace a first electrode relative to a second electrode, the biasing means comprising:
a displacement means for displacing the first electrode toward the second electrode proportional to an increase in the rate of flow of fluid in the passage.

24. A biasing means as claimed in claim 23, wherein the displacement of the first electrode toward the second electrode provides an increase in ion flow or ion current density between the electrodes.

25. A biasing means as claimed in claim 23 or 24, wherein there is a substantially proportional relationship between fluid flow rate and ion flow or ion current density between the electrodes.

26. A biasing means as claimed in claim 23, 24 or 25, wherein there is a substantially proportional relationship between fluid flow rate and displacement of the first electrode relative to the second electrode.

27. A biasing means as claimed in claim 25 or 26, wherein the proportional relationship is substantially a directly proportional relationship.

28. Trigger means operably associated with a biasing means as claimed in any one of claims 23 to 27, the trigger means comprising:
a first switch means disposed in association with the displacement means,
a second switch means adapted to cooperate with the first switch means, in a first position, to form a trigger.

29. Trigger means operably associated with an apparatus as claimed in any one of claims 1 to 10, the trigger means comprising:
a first switch means disposed in association with the second electrode arrangement,
a second switch means adapted to cooperate with the first switch means, in a first position, to form a trigger.

30. A trigger means as claimed in claim 28 or 29, wherein the second switch means is moveable relative to the first switch means.

31. A trigger as claimed in claim 30, wherein the second switch means is releasably fixed relative to the first switch means.

32. A trigger as claimed in any one of claims 28 to 31, wherein the first switch means is a magnet.

33. A trigger as claimed in any one of claims 28 to 32, wherein the second switch means is a reed switch.

34. A method substantially as herein described with reference to at least one of the accompanying drawings.

35. An apparatus substantially as herein described with reference to at least one of the accompanying drawings.